
तार की रस्सियों की सॉकेटिंग के लिए
संस्तुतियाँ

भाग 1 ज़िंक सहित सॉकेटिंग

(दूसरा पुनरीक्षण)

**Recommendations for Socketing of Wire
Ropes**

Part 1 Socketing With Zinc

(Second Revision)

ICS 77.140.65

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भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110 002

www.bis.gov.in

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FOREWORD

This Indian Standard (Part 1) (Second revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Wire Ropes and Wire Products Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1967 and revised in 1974. This standard is being revised again to keep pace with the latest technological developments and international practices. In this revision, the following major changes have been made:

- 1) A reference clause has been added mentioning the latest version of all the referred standards.
- 2) Editorial corrections have been done.

This standard on Socketing with Zinc is one of the series of standards on Socketing. Other parts of this standard are:

- IS 3937 (Part 2) : 1974 — Socketing with white metal (First Revision)
- IS 3737 (Part 3) : 1993 — Socketing with resins.

The composition of the committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

RECOMMENDATIONS FOR SOCKETING OF WIRE ROPES

PART 1 SOCKETING WITH ZINC

*(Second Revision)***1 SCOPE**

Covers the procedure to be adopted for socketing of stranded wire ropes by molten zinc so that maximum safety is assured.

2 REFERENCES

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the

standards listed below. In case the standards are to be referred in this clause they are to be listed as follows :

<i>IS No</i>	<i>Title</i>
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209 1992	: Specification for zinc (<i>fourth revision</i>)
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3 MATERIAL

The material chosen for socketing shall be zinc conforming to IS 209 : 1992. The composition, melting point and pouring temperature of the metal are given in Table 1

Table 1 Composition, Melting Point and Pouring Temperature of Socketing Metal*(Clause 3)*

Sl No.	Grade	Composition Min Zn	Approximate Melting Point	Pouring Temperature
(1)	(2)	(3)	(4)	(5)
i)	Zn 99.95 of IS 209 : 1992	99.95 percent	420°C	450 to 480°C

4 PROCEDURE

4.1 Carefully seize the wire rope just below the point where it is to be cut with tinned or galvanized seizing wires of the sizes given in Table 2 and cut the wire rope.

Table 2 Dimensions of Seizing Wire

(Clause 4.1)

Sl No.	Nominal Diameter of Wire Rope mm	Seizing Wire Diameter mm
(1)	(2)	(3)
i)	8 to 24	1.0
ii)	25 to 36	1.5
iii)	38 to 56	2.0

4.2 Seize the rope with soft iron wire for a length XY (Fig. 1) equal to twice the diameter of the rope, leaving the rope end free of this seizing YZ equal to the length of the socket barrel less half a rope diameter.

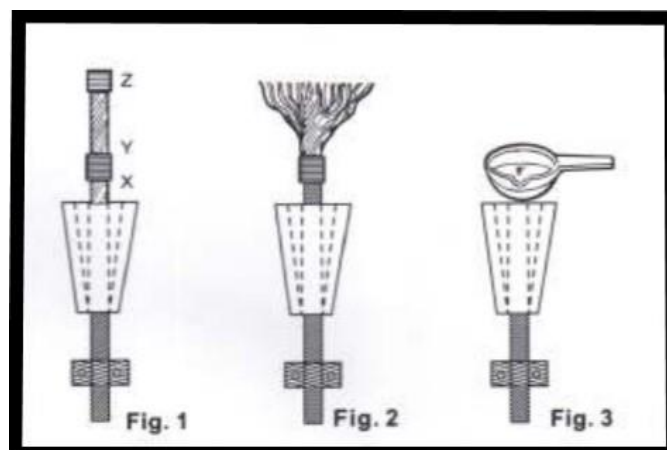
4.3 Thread the socket onto the rope and push it along out of the way.

4.4 Unlay the rope end beyond the seizing, separate all the wires out into a brush, taking care that the wires are not bent by more than 45°. The fibre core, if any should be removed or cut as deep into the brush as possible. (Fig. 2)

4.5 Clean the basket and brush to remove all grease and dirt; a degreasing agent or trichloroethylene may be used. Petrol or

paraffin is not recommended. When using a degreasing agent, the fluid should be liberally used and worked well into the throat of the brush. Remove the fluid and lubricant emulsion by washing off with hot water. Shake off the surplus water and dry the brush, it is essential that it is held downwards in the vertical position to prevent degreasing fluid, water or solvent being trapped in the throat of the brush or percolating back into the main body of the rope forming a source of corrosion. Trichloroethylene or other organic solvents shall only be used in well ventilated conditions. When used indoors, purpose designed equipment shall be used. After cleaning, the wires should first be dried and protected from contamination and also kept clear and dry until the molten metal is poured.

4.6 The cleaned brush end is drawn into position in the socket basket with the ends of the brush flush with the end of the basket. The socket is fixed upright in a soft jawed vice or clamps with the large end up. Seal the junction of the rope of the socket with asbestos yarn or asbestos fibre to prevent the escape of molten zinc. Care should be taken that the axes of the wire rope and the socket are in line and the rope is sensibly vertical over a length of at least 24 times the wire rope diameter from the socket end.



SOCKETING WITH MOLTEN ZINC

4.7 Gradually and evenly heat the socket around the outside circumference by a blow lamp or by any other suitable method so that the basket surface temperature is raised between 100 and 200°C.

4.8 The molten zinc at the proper pouring temperature specified in Table 1 is poured into the heated socket (Fig. 3). Before pouring, dross accumulated on the surface of the bath should be skimmed off. Care should be taken that only the clean bright fluid metal at the right temperature free from dross is poured into the socket. The ladle should be of sufficient capacity to hold the molten zinc to fill the socket in one filling. Pouring should be continuous, uniform until the metal completely fills the socket. To ensure that the poured metal penetrates between the wires completely, tap the socket lightly, if necessary, while the molten zinc is being poured.

4.9 After pouring the metal, allow the socket to cool gradually and do not disturb the socket till the metal is fully set and the socket cools to air temperature. The rope adjoining the socket shall then be carefully cleaned and treated with preservative dressing. After cooling, it is recommended that the seizing at the throat be removed enough to show any broken wire that may appear adjacent to the throat during service.

4.10 It is not necessary to use any flux with zinc, however, as the molten zinc has a tendency to oxidize in contact with air, it is necessary to protect the surface of the molten zinc with bone charcoal to prevent oxidation. While molten zinc is being poured into the socket, care has to be taken that none of the charcoal is carried along with the molten zinc into the socket.

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Wire Ropes and Wire Products Sectional Committee, MED 10

<i>Organization</i>	<i>Representative(s)</i>
Directorate General of Mines Safety, Dhanbad	SHRI D B NAIK (<i>Chairman</i>) SHRI VIJAY BARAPATRE (<i>Alternate</i>)
Bharat Coking Coal Limited, Dhanbad	SHRI P. K. SINHA SHRI R. K. MUNSHI (<i>Alternate</i>)
Bharat Wire Ropes Limited, Mumbai	SHRI MAHENDER SINGH ARORA SHRI MAYANK MITTAL (<i>Alternate</i>)
Central Institute of Mining and Fuel Research, Dhanbad	DR MANOJ KUMAR SINGH, DR DEBASISH BSSAK (<i>Alternate</i>)
Directorate General of Quality Assurance, New Delhi	COL K. SURESH LT COL JA VORA (<i>Alternate</i>)
Directorate General FAC Advice Service and Lab Institute, Mumbai	SHRI B N JHA SHRI AMIT GOLA
Directorate General of Aeronautical Quality Assurance, New Delhi	SHRI SANTOSH INGOLE
Eastern Coalfields Limited, Kolkata	DR. MANAS KUMAR
Hindustan Zinc Limited, Dariba	SHRI RAKESH SINGHVI SHRI SUFAL MEHROTRA (<i>Alternate</i>)
Maccaferri Environment Solutions Pvt. Limited, Navi Mumbai	SHRIMATI MINIMOL KORULLA SHRI RUDRA BUDDHABHATTI (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
Manganese Ore Limited, Nagpur	SHRI S C RAI SHRI ATUL SHARMA (<i>Alternate</i>) SHRI ASHWINI BAGHELE (<i>Alternate-II</i>) SHRI RUDRA BUDHBHATTI (<i>Alternate III</i>)
Ministry of Shipping, New Delhi	SHRI ANIL PRUTHI SHRI RAMJI SINGH (<i>Alternate</i>)
Nanda and Miller Co., Kolkata	SHRI J P GOENKA
National Test House, Kolkata	SHRI SURESH PARWAL SHRI ANGAD VERMA (<i>Alternate</i>)
Oil and Natural Gas Commission, New Delhi	SHRI RAKESH KUMAR SRIVASTAVA SHRI RITUJIT HAZARIKA (<i>Alternate</i>)
Orient Wire Ropes, Indore	SHRI SAMEER GOLWELKAR SHRI SHISHIR AKARTE (<i>Alternate</i>)
South Eastern coalfields Limited, Bilaspur	SHRI KAPIL K. RAI SHRI D. BHATTACHARJEE (<i>Alternate</i>)
Tata Steel Limited, Dhanbad	SHRI SOUMENDU MAJHI
The Shipping Corporation of India Limited, Mumbai	SHRI G. S. BHALLA CAPT R.MODI (<i>Alternate</i>)
Usha Martin Industries Limited, Ranchi	SHRI SUBRATA DUTTA SHRI SANDEEP JAISWAL (<i>Alternate</i>)
BIS Directorate General	SHRI RAJNEESH KHOSLA, Scientist 'E' And Head (MED) [Representing Director General (<i>Ex-Officio</i>)]

Member Secretary

Shri Sandeep Keshav
Scientist 'C' (MED), BIS

Bureau of Indian Standards

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower -1, 6 th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	{ 2367 0012 2320 9474
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	{ 265 9930
Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	{ 2254 1442 2254 1216
Western : Plot No. E-9, Road No.-8, MIDC, Andheri (East), Mumbai 400093	{ 2821 8093

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